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17220 NEWHOPE STREET #127  
FOUNTAIN VALLEY, CA 92708

EXAMINER

FORD, ALLISON M

ART UNIT	PAPER NUMBER
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1651

DATE MAILED: 12/01/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 10/759,659	<b>Applicant(s)</b> REHAN, SYED	
	<b>Examiner</b> Allison M Ford	<b>Art Unit</b> 1651	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 16 January 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |   |  |
|---|--|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. ____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                  | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)            |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date ____ | 6) <input type="checkbox"/> Other: ____  |

## **DETAILED ACTION**

### ***Status of Application***

Claims 1-20 are pending in the current application.

### ***Duplicate Claim Warning***

Applicant is advised that several claims in the current application are duplicates of one another; should one of the duplicated claims be found allowable, the duplicates of that claim will be objected to under 37 CFR 1.75 as being substantial duplicates thereof. Claims 1 and 17 are duplicates. Claims 2, 6, 9, and 18 are duplicates. Claims 3, 7, and 19 are duplicates. Claims 4, 9, and 20 are also duplicates. When two or more claims in an application are duplicates or else are so close in content that they both cover the same thing, despite a slight difference in wording, it is proper after allowing one claim to object to the other as being a substantial duplicate of the allowed claim. See MPEP § 706.03(k).

### ***Specification***

The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed. The following title is suggested:  
**MULTIPURPOSE PLASTIC LAB BOTTLE WITH TETHERED CAP CLOSURE.**

### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claim 10 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the

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specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

Applicant's claim 10 is directed to a process for producing plastic bottle that is used to hold microbial culture. Claim 10 includes the step of sterilizing the culture by autoclaving the bottle with contents closed inside. Autoclaving entails heating a substance to 121°C at a pressure of 15 psi (See Webster Dictionary and Univ Calgary). Autoclaving inactivates all cells, bacteria, viruses and spores; therefore if the microbial culture were autoclaved, the microorganisms would die and thus would be useless for culture.

Claims 10-16 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for a polycarbonate bottle, does not reasonably provide enablement for a bottle of any plastic. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make or use the invention commensurate in scope with these claims. The bottle described in claim 10 must undergo a sterilization step by autoclaving. Though claim 10 does not say the type of plastic the bottle is made of, claim 12 refers to the bottle being made of polycarbonate. Polycarbonate, polysulfone, polypropylene, polypropylene copolymer, and polymethylpentene are autoclavable types of plastic that could also be used to create an autoclavable plastic bottle. However the majority of plastics are not autoclavable and cannot be used to create the claimed plastic lab bottle, for example, polystyrene, polyvinyl chloride, nylon, acrylic, low density polyethylene, high density polyethylene, and polyurethane should not be autoclaved (See Cole-Parmer Technical Library). Similarly, claim 16 requires the bottle to be made from a plastic other than polycarbonate. Again, while the bottle may be made out of other specific autoclavable plastics, such as those listed above, it cannot be made of any plastic, as many are not autoclavable, and would melt.

***Claim Rejections - 35 USC § 112***

Claims 2, 6, 9, and 18 recites the limitation "the polycarbonate bottle" in the first line of the claims. There is insufficient antecedent basis for this limitation in the claim. Reference has been made to a plastic lab bottle, but claim 1 does not require the plastic to be polycarbonate.

Claims 3, 7, and 19 recites the limitation "the band" in the first line of the claims. There is insufficient antecedent basis for this limitation in the claims. Reference has been made to the tether which attaches the cap to the bottle in claim 1, but this was not referred to as a band.

Claims 4, 9, and 20 recites the limitation "band stiffness" in the first line of the claims. There is insufficient antecedent basis for this limitation in the claims. Reference has been made to the tether which attaches the cap to the bottle in claim 1, but no reference has been made to a band or its stiffness.

Claim 12 recites the limitation "the polycarbonate bottle" in the first line of the claims. There is insufficient antecedent basis for this limitation in the claim. Reference has been made to a plastic lab bottle, but claim 10 does not require the plastic to be polycarbonate.

Claim 13 recites the limitation "the band" in the first line of the claims. There is insufficient antecedent basis for this limitation in the claims. Reference has been made to the tether which attaches the cap to the bottle in claim 10, but this was not referred to as a band.

Claim 14 recites the limitation "band stiffness" in the first line of the claims. There is insufficient antecedent basis for this limitation in the claims. Reference has been made to the

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tether which attaches the cap to the bottle in claim 10, but no reference has been made to a band or its stiffness.

Claims 10, 15, are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Applicant's claim 10 is directed to a process for forming a plastic lab bottle that is used to hold microbial culture. It is not clear if applicant intended to claim dispensing microbial culture into the plastic lab bottle, or dispensing microbial culture *medium* into the plastic lab bottle. The specification outlined dispensing culture medium into the bottle for use in cell culture labs.

Applicant's claim 15 is directed to the method of claim 10, further requiring the step of shaking the bottle into a device that agitates the bottle and contents for mixing. It is not clear how the bottle is shaken *into* a device for agitation; rather it appears the bottle should be placed into a device that will agitate the bottle, thereby mixing its contents.

#### ***Claim Rejections - 35 USC § 102***

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 3, 4, 7, 9, 17, 19 and 20 are rejected under 35 U.S.C. 102(b) as being anticipated by Nalgene Lexan Wide-Mouth Bottles (bottle by Nalgene, described by Backpacker Magazine, April 2000).

Applicant's claims 1 and 17 are directed to a plastic bottle which has an annular protrusion around the shoulder arc and an annular protrusion around the base arc; at the annular protrusions at the shoulder and base arcs the wall is thicker. Claims 3, 7, and 19 require the tethered band to have indentation groves allowing calibration of stiffness. Claims 4, 9, and 20

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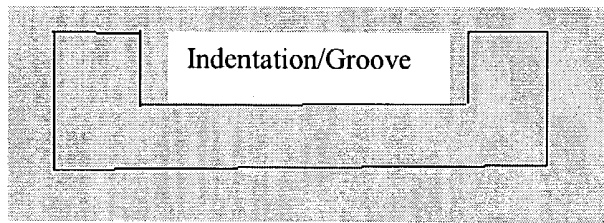
require the tether stiffness to be matched to cap weight, allowing an open cap to rest in an open extended position, suspended in midair. The cap is *provided for* the bottle, the bottle does not *comprise* the cap, therefore it is not an integral component of the bottle; however in an effort to compact prosecution the bottle is being interpreted to further comprise the cap.

The bottle product as claimed is determined to be a product-by-process claim. Even though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process. *In re Thorpe*, 777 F.2d 695, 698, 227 USPQ 964, 966 (Fed. Cir. 1985).

Nalgene sells a wide-mouthed plastic bottles made from a polycarbonate material referred to as Lexan, the bottle is referred to as the Nalgene Lexan Wide-Mouth Bottle. The plastic bottle has an annular protrusion around the shoulder arc and an annular protrusion around the base arc; from visual inspection the wall at the annular protrusions of the base and should arcs appear thicker then the wall than compared to the sidewalls. Though the claimed bottle does not *comprise* the described cap, the bottles sold by Nalgene are capped by a plastic cap, which is tethered by a tether to a tether ring that fits over the threaded neck of the bottle. The tether is calibrated in stiffness so that an open cap rests in open extended position, suspended in midair (Claims 1 and 17). These Nalgene Wide-Mouth bottles have been sold for many years, for example, it was sold in 2000 as Backpacker Magazine awarded the bottle the "Editors' Choice Gold" in 2000, in the April 2000 edition of the magazine (See Backpacker Magazine, 2000).

The tether of the bottle has one large indentation groove, allowing calibration of stiffness to match up to the cap weight. The relative thickness of the tether, altered by the indentation groove allows the cap to be suspended in midair when resting in an open position (Claims 3, 4, 7, 9, 19, and 20). Therefore, the references anticipate the claimed subject matter.

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(Cross-sectional view of tether of Nalgene Lexan Wide-Mouth Bottle)

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-4, 6-9, and 17-20 rejected under 35 U.S.C. 103(a) as being unpatentable over Nalgene Lexan Wide-Mouth Bottles (bottle by Nalgene, described by Howe, *Backpacker Magazine*, April 2000), in light of Product Information (Provided by NNI Technical Support).

Applicant's claims 1 and 17 are directed to a plastic bottle which has an annular protrusion around the shoulder arc and an annular protrusion around the base arc; at the annular protrusions at the shoulder and base arcs the wall is thicker. Claims 2, 6, 8, and 18 require the wall of the polycarbonate bottle to not be uniform, and range in thickness from 7mm at the sidewall to 9 mm at the neck and base arc areas. Claims 3, 7, and 19 require the tethered band to have indentation groves allowing calibration of stiffness. Claims 4, 9, and 20 require the tether stiffness to be matched to cap weight, allowing an open cap to rest in an open extended position, suspended in midair. The cap is *provided for* the bottle, the bottle does not *comprise* the cap, therefore it is not an integral component of the bottle; however in an effort to compact prosecution the bottle is being interpreted to further comprise the cap.



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The bottle product as claimed is determined to be a product-by-process claim. Even though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process. *In re Thorpe*, 777 F.2d 695, 698, 227 USPQ 964, 966 (Fed. Cir. 1985).

Nalgene sells a wide-mouth plastic bottle made from polycarbonate, also referred to as Lexan (See Nalgene, Specification and Care Technical Data Sheet). These Nalgene Wide-Mouth bottles have been sold for many years, Backpacker Magazine awarded the bottle the Editors' Choice Gold in 2000 in the April 2000 edition of the magazine (See Backpacker Magazine, 2000). The plastic bottle has an annular protrusion around the shoulder arc and an annular protrusion around the base arc; from visual inspection the wall at the annular protrusions of the base and should arcs appear thicker then the wall than compared to the sidewalls. Though the claimed bottle does not *comprise* the described cap, the bottles sold by Nalgene are capped by a plastic cap, which is tethered by a tether to a tether ring that fits over the threaded neck of the bottle. The tether is so calibrated in stiffness so that an open cap rests in open extended position, suspended in midair (Claims 1 and 17).

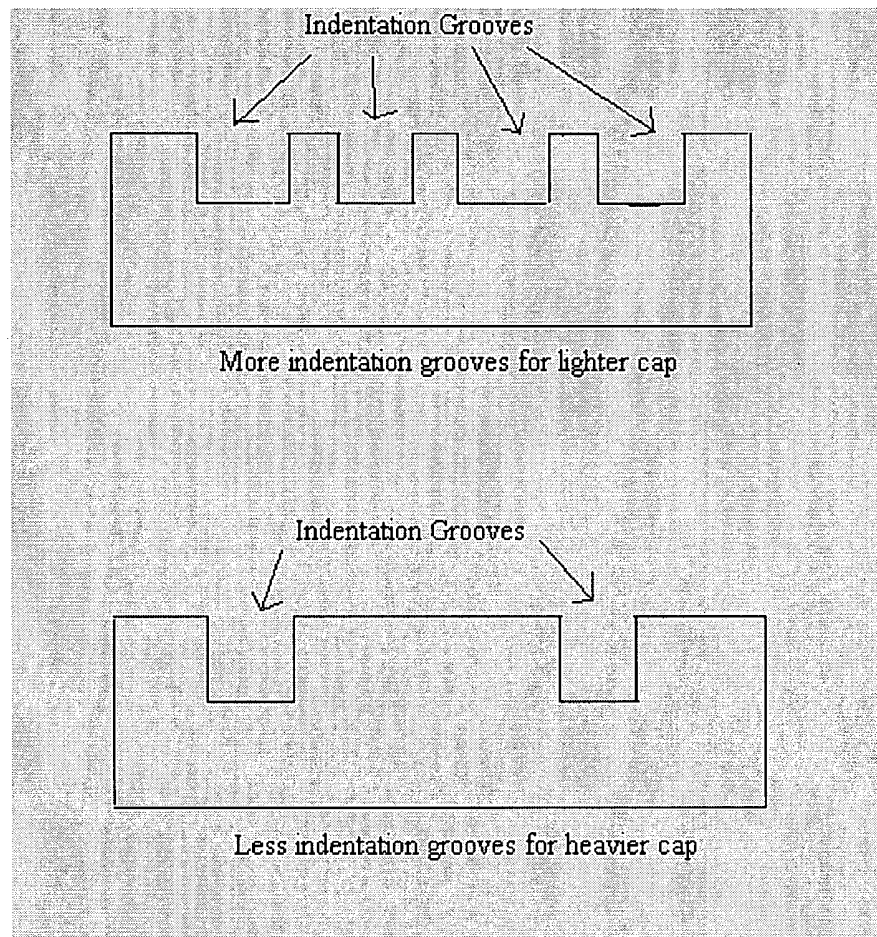
The tether of the bottle has one large indentation groove, allowing calibration of stiffness to match up to the cap weight. The relative thickness of the tether, altered by the indentation groove allows the cap to be suspended in midair when resting in an open position (Claims 3, 4, 7, 9, 19, and 20).

The Nalgene Lexan Wide-Mouth Bottles have a sidewall thickness between 1.3 and 1.5 mm (See email regarding Product Information of Nalgene Lexan Wide-Mouth Bottles). Through visual inspection of the Nalgene Lexan Wide-Mouth Bottles, the thickness at the annular protrusions around the neck and base arc are clearly thicker then the side wall. This increased

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thickness is an inherent result of the formation process of the plastic, as an evenly distributed layer of plastic would build up in such an annular arc, causing an increase in thickness. Though the thickness of the Nalgene Lexan Wide-Mouth Bottles is not the same as the claimed invention, the wall thickness appears to be a matter of optimal design choice. One could produce thicker walls, if desired, simply by using more plastic in the formation process- though the thinner walls of the Nalgene Lexan Wide-Mouth Bottles are autoclavable, and have been proven resistant to breaking or cracking even with strenuous usage (See Nalgene, Specifications and Care, Technical Data & Howe, *Backpacker Magazine*, 2000) (Claims 2, 6, 8, and 18). One would be motivated to produce thicker walls as the bottle increased in volume in order to provide more mechanical stability. One would expect success because increasing the thickness of the walls would have no negative effect on the structural stability, autoclavability, or overall function of the bottle.

Though the tether does have one indentation groove which manipulates its thickness, and therefore its stiffness and ability to match to the cap's weight to suspend an open cap in midair, it would have been obvious to one of ordinary skill in the art to employ multiple indentation grooves. One of ordinary skill in the art would have been motivated to create multiple indentation grooves in order to save on production costs. By producing only one size/thickness of tether only one mold would be required; from the single sized tether more or less grooves could be cut in order to alter the thickness, and therefore the stiffness and ability to hold a heavier or lighter cap in midair. One would have expected success because it is well known that the thinner the material, such as in plastic tethers, the more pliable the material is. Therefore more indentation grooves would have made the tether thinner and more pliable, less indentation grooves would make the tether thicker and less pliable, therefore able to withstand increased weight from the cap (Claims 3, 4, 7, 9, 19, and 20). Therefore the invention as a whole would have been *prima facie* obvious to one of ordinary skill in the art at the time the invention was made.



Claims 1-4, 6-9, and 17-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over the public use and sale of Narrow Mouth Bottles, by Nalgene Labware (Nalgene Product Catalog, 2004), in view of Nalgene Lexan Wide-Mouth Bottle (bottle by Nalgene, described by Howe, *Backpacker Magazine*, April 2000), in light of Product Information (Provided by NNI Technical Support)..

Applicant's claims 1 and 17 are directed to a plastic bottle which has an annular protrusion around the shoulder arc and an annular protrusion around the base arc; at the annular protrusions at the shoulder and base arcs the wall is thicker. Claims 2, 6, 8, and 18 require the wall of the polycarbonate bottle to not be uniform, and range in thickness from 7mm at the sidewall to 9 mm at the neck and base arc areas. Claims 3, 7, and 19 require the tethered band to

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have indentation groves allowing calibration of stiffness. Claims 4, 9, and 20 require the tether stiffness to be matched to cap weight, allowing an open cap to rest in an open extended position, suspended in midair. The cap is *provided for* the bottle, the bottle does not *comprise* the cap, therefore it is not an integral component of the bottle; however in an effort to compact prosecution the bottle is being interpreted to further comprise the cap.

The bottle product as claimed is determined to be a product-by-process claim. Even though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process. *In re Thorpe*, 777 F.2d 695, 698, 227 USPQ 964, 966 (Fed. Cir. 1985).

Nalgene Labware sells lines of plastic bottles for use in the lab as product line DS2205; the bottles, described in the current 2004 catalog are notoriously old and well known, they have been available since 1977 (See email regarding production date of Narrow Mouth Bottles (DS2205) from NNI Technical Support). The plastic bottles are made from clear polycarbonate in sizes from 50 mL to 20 L. The bottles have an annular protrusion around the shoulder arc and an annular protrusion around the base arc. From visual inspection the wall at the annular protrusions of the base and should arcs appear thicker then the wall than compared to the sidewalls. The Narrow Mouth Bottles come with caps, however they are not tethered by a tether that is calibrated in stiffness. However, it would have been obvious to one of ordinary skill in the art at the time the invention was made to provide a tether to attach the cap to the bottle. One of ordinary skill in the art would have been motivated to provide a tethered cap in order to keep the cap and bottle together, so that caps do not get misplaced, and so that sterility may be maintained by avoiding setting the cap down on contaminated bench surfaces. One would expect success because tethered caps are provided for other Nalgene products, such as the Nalgene Lexan Wide-

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Mouthed bottle. It would have been obvious to provide a similar tether for any plastic lab ware with a screw-on top (Claims 1 and 17).

The side walls of Nalgene Narrow-Mouth Bottles range in thickness depending on the size of the bottle, for example, the 2 L bottle has a thickness of 1.8 mm, the 4 L bottle is 2 mm thick, the 8 L bottle is 3 mm thick (See email regarding Product Information of Nalgene DS2205 Narrow Mouth bottles). Through visual inspection of the Nalgene Lexan Wide-Mouth Bottles, the thickness at the annular protrusions around the neck and base arc are clearly thicker than the side wall. This increased thickness is an inherent result of the formation process of the plastic, as an evenly distributed layer of plastic would build up in such an annular arc, causing an increase in thickness. Though the thickness of the Nalgene Narrow-Mouth Bottles is not the same as the claimed invention, the wall thickness appears to be a matter of optimal design choice. One could produce thicker walls, if desired, simply by using more plastic in the formation process (Claims 2, 6, 8, and 18). One would be motivated to produce thicker walls as the bottle increased in volume in order to provide more mechanical stability. One would expect success because increasing the thickness of the walls would have no negative effect on the structural stability, autoclavability, or overall function of the bottle.

Though the tether does have one indentation groove which alters its thickness, and therefore its stiffness and ability to match to the cap's weight to suspend an open cap in midair, it would have been obvious to one of ordinary skill in the art to employ multiple indentation grooves. One of ordinary skill would have been motivated to create multiple indentation grooves in order to one thickness of tether, to save on production costs, and simply create more or less grooves to alter the thickness, and therefore the stiffness and ability to hold a heavier or lighter cap in midair. One would have expected success because it is well known that the thinner the material, such as in plastic tethers, the more pliable the material is. Therefore more indentation grooves would have made the tether thinner and more pliable, less indentation grooves would

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make the tether thicker and less pliable, therefore able to withstand increased weight from the cap (See drawings above) (Claims 3, 4, 7, 9, 19, and 20). Therefore the invention as a whole would have been *prima facie* obvious to one of ordinary skill in the art at the time the invention was made.

Claims 5 and 10-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nalgene Lexan Wide-Mouth Bottle (bottle by Nalgene, described by Howe, *Backpacker Magazine*, April 2000), in light of Product Information (Provided by NNI Technical Support), in view of Cannon et al (US Patent 3,807,923), in light of "Injection Blow Molding" (Dept. of Polymer Science, USM),.

Applicant's claim 5 is directed to a method of making a plastic bottle, comprising injecting plastic into a first mold; blowing preform into a second mold; ejecting plastic bottle from the second mold; providing a plastic cap with tether and a tether ring; and pulling the tether ring over the neck of the bottle. Claim 10 further requires dispensing microbial culture into the bottle; sealing microbial culture inside bottle by closing the cap of the bottle; sterilizing the bottle by autoclaving the bottle; optionally shrink wrapping a seal around the bottle. Claim 11 further requires the bottle to be shipped to a second location. Claim 12 requires the walls of the bottle to not be uniform and ranges in thickness from 7 mm at the sidewall to 9 mm at the neck arc and base arc areas. Claim 13 requires the tether band to have indentation grooves allowing calibration of stiffness. Claim 14 requires the tether band stiffness to be matched to cap weight allowing an open cap to rest in an open extended position suspended in midair. Claim 15 further requires the bottle to be shaken in a device that agitates the bottle and mixes its contents. Claim 16 requires the bottle to be made from a plastic other than polycarbonate.

Cannon et al teaches a process for producing plastic bottles by the injection/blow-molding technique. In the injection/blow-molding technique a parison is first injection molded by

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injecting plastics into a plastic tube; in the case of bottles, the screw-threaded neck can be injection molded in this step. After cooling the parison is transferred to a blow mold, if the parison comprises the screw threaded neck of a bottle the bottle neck is held in the neck portion of the blow mold, so that the blow-molding only forms the body of the bottle; in the blow mold pressurized gas, usually air, is applied to the parison to expand it to the interior shape of the blow mold, forming the body of the bottle (See col. 1, ln 14-26). Though Cannon et al does not explicitly describe the final step of ejecting the formed bottle from the blow mold, it is an obvious inference that the bottle would be removed after cooling.

The Department of Polymer Sciences at USM also defines the injection blow molding process as especially useful for the formation of bottles. The injection blow molding process consists of three stations, first plastic is injected into a first mold to form a plastic tube, called the parison; second the parison is transferred to a second station where a second mold closes around the parison, wherein the second mold is in the shape of the final container, air is injected into the parison, expanding the parison to the shape of the mold; third, after cooling the finished product is ejected off. The threaded necks of bottles can be formed during the injection process (See "Injection Blow Molding").

This injection/blow molding technique described by Cannon et al and the Department of Polymer Science can be used to form plastic bottles, such as the Nalgene Lexan Wide-Mouth Bottle. The injection/blow molding process does not produce the cap or tether with tether ring, as described by applicant; however the Nalgene Lexan Wide-Mouth Bottle does include a cap with a tether and tether ring. Therefore Nalgene teach providing a plastic cap with tether and tether ring and pulling the tether ring over the neck of the ring bottle (Claim 5). It would have been obvious to one of ordinary skill in the art to form plastic bottles by the injection/blow molding process and then further supply a cap with a tether and tether ring and pull the tether ring over the neck of the bottle in order to provide a finished bottle product that has an attached lid. The skilled artisan

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would have been motivated to produce a plastic bottle by the injection molding process because it is the most common way to manufacture hollow plastic bottles; similarly one would have expected success because the injection blow molding process is well known and commonly used especially for the production of plastic bottles with screw threaded necks (See, e.g. Cannon et al). One of ordinary skill in the art would have been motivated to further provide a tethered cap to the plastic bottle in order to keep the cap and bottle together, so that caps do not get misplaced, and so that sterility may be maintained by avoiding setting the cap down on contaminated bench surfaces. One would expect success because tethered caps are provided for other Nalgene products, such as the Nalgene Lexan Wide-Mouthed bottle.

These Nalgene Wide-Mouth bottles have been sold for many years, Backpacker Magazine awarded the bottle the Editors' Choice Gold in 2000 in the April 2000 edition of the magazine (See Backpacker Magazine, 2000). The bottles are durable and autoclavable (See Nalgene, Specifications and Care Technical Data Sheet), they can be used to hold any liquid, including cell culture. Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to dispense microbial culture into the bottle, close the bottle (thereby sealing the microbial culture inside the bottle), autoclaving the bottle, and optionally shrink wrapping the bottle (Claim 10). One of ordinary skill in the art would have been motivated to fill the bottle with microbial culture in order to ship or move microbial culture. One would have expected success because the bottle is capable of holding any liquid, it is autoclavable, it is extremely durable and resistant to breaking or cracking; therefore one would have expected success using the Nalgene Lexan Wide-Mouth Bottles to ship microbial culture. The step of actually shipping the bottle to another location is obvious, as bottles and other products are continually shipped to second locations in order to reach consumers. Therefore, if the bottle were being used to transport liquids, such as microbial culture, it would be obvious that the transport would involve shipping to a second location (Claim 11). It would have further been



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obvious to one of ordinary skill in the art, at the time the invention was made to, upon receipt of a shipped bottle with heterogeneous contents, such as microbial culture, to shake the bottle, either by hand, or by placing it in a device that agitates the bottle, thereby mixing its contents. One would have been motivated to agitate the bottle upon receipt to resuspend its contents, making it a more homogenous mixture. One would expect success because it is well known that heterogeneous mixtures can settle out, and shaking can restore even mixture; additionally, the bottles sold by Nalgene are made to withstand great physical use and abuse, including shaking (See Howe, *Backpacker Magazine*, 2000) (Claim 15).

The Nalgene Lexan Wide-Mouth Bottles have an annular protrusion around the shoulder arc and an annular protrusion around the base arc; from visual inspection the wall at the annular protrusions of the base and should arcs appear thicker than the wall than compared to the side walls. The bottles sold by Nalgene are capped by a plastic cap, which is tethered by a tether to a tether ring that fits over the threaded neck of the bottle. The tether is so calibrated in stiffness so that an open cap rests in open extended position, suspended in midair (Claim 13). The tether of the bottle has one large indentation groove, allowing calibration of stiffness to match up to the cap weight. The relative thickness of the tether, altered by the indentation groove allows the cap to be suspended in midair when resting in an open position (Claim 14). The bottles come in several different materials, including polycarbonate, high-density polyethylene (HDPE), and polypropylene (PP), all these are autoclavable (See Nalgene Specifications and Care Data Technical Data Sheet) (Claim 16).

The Nalgene Lexan Wide-Mouth Bottles have a sidewall thickness of between 1.3 and 1.5 mm (See email regarding Product Information of Nalgene Lexan Wide-Mouth Bottles). Through visual inspection of the Nalgene Lexan Wide-Mouth Bottles, the thickness at the annular protrusions around the neck and base arc are clearly thicker than the side wall. This increased thickness is an inherent result of the formation process of the plastic, as an evenly distributed

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layer of plastic would build up in such an annular arc, causing an increase in thickness. Though the thickness of the Nalgene Lexan Wide-Mouth Bottles is not the same as the claimed invention, the wall thickness appears to be a matter of optimal design choice. One could produce thicker walls, if desired, simply by using more plastic in the formation process- though the thinner walls of the Nalgene Lexan Wide-Mouth Bottles are autoclavable, and have been proven resistant to breaking or cracking even with strenuous usage (See Nalgene, Specifications and Care, Technical Data & Howe, *Backpacker Magazine*, 2000) (Claim 12). One would be motivated to produce thicker walls as the bottle increased in volume in order to provide more mechanical stability. One would expect success because increasing the thickness of the walls would have no negative effect on the structural stability, autoclavability, or overall function of the bottle.

Though the tether does have one indentation groove which manipulates its thickness, and therefore its stiffness and ability to match to the cap's weight to suspend an open cap in midair, it would have been obvious to one of ordinary skill in the art to employ multiple indentation grooves. One of ordinary skill in the art would have been motivated to create multiple indentation grooves in order to save on production costs. By producing only one size/thickness of tether only one mold would be required; from the single sized tether more or less grooves could be cut in order to alter the thickness, and therefore the stiffness and ability to hold a heavier or lighter cap in midair. One would have expected success because it is well known that the thinner the material, such as in plastic tethers, the more pliable the material is. Therefore more indentation grooves would have made the tether thinner and more pliable, less indentation grooves would make the tether thicker and less pliable, therefore able to withstand increased weight from the cap (Claims 13 and 14). Therefore the invention as a whole would have been *prima facie* obvious to one of ordinary skill in the art at the time the invention was made.

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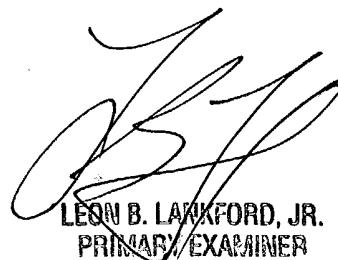
***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Allison M Ford whose telephone number is 571-272-2936. The examiner can normally be reached on M-F 7:30-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Wityshyn can be reached on 571-272-0926. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Allison M Ford  
Examiner  
Art Unit 1651



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